San Joaquin Valley Unified
Air Pollution Control District
Information Services

REQUEST FOR PROPOSAL

IMPLEMENTATION OF A STRUCTURED CABLING SYSTEM FOR COMMUNICATION SERVICES

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June 11, 2015

Proposal Deadline:
5:00 p.m. on Monday, July 27, 2015

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1.0 INTRODUCTION AND BACKGROUND

The San Joaquin Valley Unified Air Pollution Control District (District) was formed in 1991 to assume all responsibilities for air pollution control in the San Joaquin Valley Air Basin. This air basin consists of the seven counties of Tulare, Kings, Fresno, Madera, Merced, Stanislaus, and San Joaquin, plus the Valley portion of Kern County. The Central Region/administrative office is in Fresno, the Southern Region office is in Bakersfield, and the Northern Region office is in Modesto. The District's 15-member Governing Board is comprised of eight county Supervisors from each of the eight Valley counties, five City Council members selected from cities within the District, and two public members appointed by the Governor.

It is the intent of the District to upgrade the existing ANSI/TIA/EIA-568-C.1-2009, Commercial Building Telecommunications Cabling Standard, Part 1 General Requirements compliant structured cabling system in the Fresno office; data cabling to Category 6A (10GBase-T) certified specifications and voice cabling to Category 6 certified specifications. The operational dates for this cabling upgrade project are detailed in the Project Schedule timeline (Appendix A). In general, the overall cabling project will take place in phases from July through October 2015.

The purpose of this document is to request proposals from contractors interested in providing a complete and operational structured cabling system (including labor, materials, transportation, equipment, miscellaneous services, etc., required to accomplish this result). Anything that may be reasonably construed as a necessary part of the upgrade and its complete installation is to be included, whether or not specifically shown or mentioned. All work done by the contractor and materials supplied by the contractor shall comply with the applicable sections of the following codes for installation of telecommunications cabling:

- Uniform Building Code (UBC)
- National Electrical Code (NEC/NFPA 70)
- National electrical Safety Code (NESC IEEE C 2)
- Local Codes, amendments, and ordinances

All materials and installation practices shall comply with the applicable sections of the following Telecommunications Industry Standards:

- ANSI/TIA/EIA-568-C.1-2009, Commercial Building Telecommunications Cabling Standards, Part 1: General Requirements.
- ANSI/TIA/EIA-568-C.2-2009, Commercial Building Telecommunications Cabling Standards, Part 2: Balanced Twisted Pair Cabling Components.
- ANSI/TIA/EIA-569-B-2004, Commercial Building Standards for Telecommunications Pathways and Spaces.

- ANSI/TIA/EIA-606-B-2012, The Administration Standard for the Telecommunications Infrastructure of Commercial Building.
- ANSI/TIA/EIA-607-B-2011, Commercial Building Grounding and Bonding Requirements for Telecommunications.

Selection of the successful responding vendor will be based on the District's sole judgment of all proposals, particularly which one best qualifies for acceptance and most nearly meeting District needs. While the lower cost is an important consideration in the selection process, it may not be the only consideration for the final selection After selection of the successful response, if any, and prior to signing a contract for implementation, the District may modify, by mutual agreement, the system requirements by adding or deleting specific equipment or optional features. The evaluation process will be directed primarily at those capabilities clearly shown in the written proposal submitted. However, the District may request any or all firms submitting proposals to make oral presentations during the evaluation process and/or provide additional information.

The District reserves the right to accept other than the lowest-priced proposal and to negotiate with proposers if it is in the best interest of the District to do so. The District reserves the right to reject any and all proposals.

2.0 PERFORMANCE REQUIREMENTS AND TECHNICAL SPECIFICATIONS

The technical specifications for this RFP are explained in the following section. Unless expressly specified, all other sections of this document refer to the overall project as a single entity.

There will be a mandatory on-site inspection for prospective bidders, scheduled at 1:30 PM on Monday, July 13, 2015. This on-site inspection will allow for briefing on and specific questions about the project. No exceptions to this scheduling are available, and no individual appointments will be made.

2.1 Section A: Data Cabling

It is the intent of the District for the contractor to design, purchase, install, and certify an ANSI/TIA/EIA-568-C.1-2009, Commercial Building Telecommunications Cabling Standard, Part 1 General Requirements compliant structured cabling system to upgrade its existing data cabling system in the Fresno office to Category 6A (10GBase-T) certified specifications. The completion of all phases of the project should be no later than Friday, October 30, 2015. This cabling system shall be a standard Category 6A (10GBase-T) system throughout.

The contractor selected for this project will provide the following services:

2.1.1 Design

It is the responsibility of the contractor to ensure that all cabling complies with applicable standards. While the District will provide preliminary design overviews, the contractor will be responsible for final design that will meet standards and accomplish the intended purposes.

The District's main office is located at 1990 E. Gettysburg Avenue in Fresno. The data cabling portion of the cabling project intends to upgrade the current Category 5 cabling standard to the Category 6A (10GBase-T) standard. It is estimated that 540 horizontal wiring segments/cables will be upgraded for this portion of the project. Included in the number of the horizontal wiring segments, there are data drops above the ceiling for connection to Wi Fi access points. The contractor is also responsible for providing the District with a per segment/cable price for additional data connections not included in this RFP. In addition, the contractor is responsible for providing the District with a per segment/cable price for additional data connections requested after completion of this project (prices to be guaranteed to the District for a period of twelve (12) months from District acceptance of the installed system).

The locations of the drops are indicated on the building floor plan (see Appendix B), and/or detailed by the District site contact. There are also drops above the ceiling for Wi Fi access points that are not identified on the building floor plan. All final cable locations must be reviewed with the site contact.

2.1.2 Purchase

The contractor shall be responsible for the purchase of all necessary materials and equipment (unless otherwise specified) for the installation and testing of the structured cabling system specified in this RFP.

2.1.3 Installation

The contractor is responsible for the following:

- Provide and install horizontal and vertical wiring runs to provide connections for all workstation, copier/printer, and other data networked device drop locations to the Computer Room (CR), Telecommunications Closet/Main Point of Entry (MPOE) and above ceiling locations (for connection to Wi Fi access points) with blue jacket four (4) pair Category 6A (10GBase-T) UTP cable. Vendor is responsible for selecting the optimum cable and it must meet the appropriate building code requirements. UTP cables from CR and MPOE locations to all work areas are to be in approved raceways for each location. All four (4) pairs of each cable are to be punched down at the patch panel and at the workstation jacks, and there should be one computing device per cable.
- Provide and install 48-port Category 6A (10GBase-T) patch panel for data jacks to floor workstations as needed (Hubbell #HP6A48U for example).
- Provide a minimum 4’ slack loop in the accessible ceiling for each drop location.
- Provide pull lines in District-designated conduits, to be of sufficient strength to enable future cable pulls through the conduits.
- Provide and install Category 6A (10GBase-T) 8-pin modular (RJ45) jacks and faceplates (Systimax MGS600 or equivalent) to accommodate all workstation drop locations. It is the District’s intention for all faceplates to be mounted flush with the wall surface unless specifically authorized by the District (no surface mounted jack modules). The District reserves the right to review all drop locations and make alternate suggestions where necessary. Each data connection to the workstation wall jack must be terminated using an orange 8-pin 568B modular RJ45 jack, mounted in ivory faceplates.
- Provide and install corresponding ceiling and wall conduit sleeves to allow cabling to pass through the CR and MPOE drop ceiling and other wall penetrations (as needed). It is the intention of the District to re-use the current wall conduits where possible and install new conduits as needed. All penetrations of fire-rated walls will also require sufficient sealing in order to meet existing fire regulations.



- Cables should be neatly dressed and supported by the existing cable management system attached to the rack(s) and/or patch panels. It is the intention of the District that the previously installed cabling system is matched as closely as possible.
- The cable system should be self-supported every four (4) feet by means of Caddy wide base cable hangers, Bridal Rings with saddles, or other approved Category 6A (10GBase-T) supports. All cable supports and pathways are to be provided by the contractor and shall not be attached to existing ceiling wires, pipes, conduits, etc. Cable runs must not lie directly on the ceiling grid. Installation of cabling should be bundled in a main route, and drops branched off at building angles at each location as required. Cable runs must avoid any sources of electrical or mechanical interference.
- Wire twists for all pairs must be maintained up to the point of termination (within 13 mm or 0.5 in for Category 6A (10GBase-T) installations).
- There must be a minimum bend radius of four (4) times the cable diameter for 4-pair cable.
- Cable length from punch block to wall plate should not exceed 90 meters. It is the intention of the District that the installed cabling system is routed for optimal paths from punch block to wall plate in order to eliminate exceeding CAT 6A cable length specifications.
- Each cable should be permanently labeled at the work area faceplate and at the patch panel(s). Hand written labels are not acceptable. All labels should be machine printed black-on-white opaque tape. The font should be at least one-eighth inch (1/8") in height, block characters, and legible. If District-authorized surface mount modules are utilized, the label should be visible on the top of the module. The numbering scheme shall match the established scheme of 1D###, where '1' indicates the MPOE location and '2' indicates CR location; 'D' indicates data (as opposed to voice); and '###' indicates sequential numbers to correspond to the drop locations throughout the office space. The District is interested in the vendor's approach to labeling the data drops located above the ceiling.
- The numbering pattern shall be ordered in a logically consecutive manner around the office space. It is the District's intention to align the data drop numbering with the voice drop numbering as much as possible. The District reserves the right to review the numbering pattern and make alternate suggestions where necessary.
- This network will use T568B wiring standards for all modular 8-pin (RJ-45) connections. The T568B standard is as follows:

PIN	COLOR		INDICATOR
1	White	Orange	W-O
2	Orange		O
3	White	Green	W-G
4	Blue		B
5	White	Blue	W-Bl
6	Green		G
7	White	Brown	W-Br
8	Brown		Br

- The work performed under this specification shall be of good quality and performed in a workmanlike manner. In this context, "good quality" means the work shall meet industry technical standards and quality of appearance. The District reserves the right to reject all or a portion of the work performed, either on technical or aesthetic grounds.
- The contractor should complete the installation of cabling in accordance with the EIA/TIA-568B Category 6A (10GBase-T) standards. Installation practices should be consistent with those entailed in the BICSI (Building Industry Consulting Services International) Telecommunications Distribution Methods Manual and will conform to all national, state and local municipal building codes.

Note *Throughout this RFP, Systimax and other manufacturers are cited, along with specific part numbers. These citations are for the purpose of establishing quality, function, and performance criteria. The contractor may provide approved alternatives. The District reserves the right to require a complete sample of any proposed item (with manufacturer specification sheets) and may, if necessary, request a sample tested by an independent testing laboratory to prove equality. The decision of the District regarding equality and proposed equal items will be final.*

2.2 Section B: Voice Cabling

It is the intent of the District for the contractor to design, purchase, install, and certify an ANSI/TIA/EIA-568-C.1-2009, Commercial Building Telecommunications Cabling Standard, Part 1 General Requirements compliant structured cabling system to upgrade its existing voice cabling system in the Fresno office to Category 6 certified specifications. The completion of all phases of the project should be no later than Friday, October 30, 2015. This cabling system shall be a standard Category 6 system throughout.

The contractor selected for this project will provide the following services:

2.2.1 Design

It is the responsibility of the contractor to ensure that all cabling complies with applicable standards. While the District will provide preliminary design overviews, the contractor will be responsible for final design that will meet standards and accomplish the intended purposes.

The District's main office is located at 1990 E. Gettysburg Avenue in Fresno. The voice cabling portion of the cabling project intends to upgrade the current Category 5 cabling standard to the Category 6 standard. It is estimated that there are 350 horizontal wiring segments/cables that will be upgraded for the voice cabling portion of the project. The contractor is also responsible for providing the District with a per segment/cable price for additional voice connections not included in this RFP. In addition, the contractor is responsible for providing the District with a per segment/cable price for additional voice connections requested after completion of this project (prices to be guaranteed to the District for a period of twelve (12) months from District acceptance of the installed system).

The locations of the drops are indicated on the building floor plan (see Appendix B), and/or detailed by the District site contact. All final cable locations must be reviewed with the site contact.

2.2.2 Purchase

The contractor shall be responsible for the purchase of all necessary materials and equipment (unless otherwise specified) for the installation and testing of the structured cabling system specified in this RFP.

2.2.3 Installation

The contractor is responsible for the following:

- Provide and install horizontal and vertical wiring runs to provide connections for all telephone drop locations to the Computer Room (CR) and Telecommunications Closet/Main Point of Entry (MPOE) with white jacket four (4) pair Category 6 UTP cable. Vendor is responsible for selecting the optimum cable and it must meet the appropriate building code requirements. UTP cables from CR and MPOE locations to the work area are to be in approved raceways for each location. All four (4) pairs of each cable are to be punched down at the patch panels and at the telephone jacks.
- Provide and install 48-port Category 6 patch panel for voice jacks to floor locations as needed (Hubbell #P6E48U or equivalent).
- Provide a minimum 4' slack loop in the accessible ceiling for each drop location.
- Provide pull lines in District-designated conduits, to be of sufficient strength to enable future cable pulls through the conduits.

- Provide and install Category 6 8-pin modular (RJ45) jacks and faceplates (Systimax M100 Series or equivalent) to accommodate all telephone drop locations. It is the District's intention for all faceplates to be mounted flush with the wall or post surface unless specifically authorized by the District (no surface mounted jack modules). The District reserves the right to review all drop locations and make alternate suggestions where necessary. Each voice connection to the telephone wall jack must be terminated using an ivory 8-pin 568B modular RJ45 jack, mounted in ivory faceplates.
- Cables should be neatly dressed and supported by a cable management system attached to the rack(s) and/or patch panels.
- The cable system should be self-supported every four (4) feet by means of Caddy wide base cable hangers, Bridal Rings with saddles, or other approved Category 6 supports. All cable supports and pathways are to be provided by the contractor and shall not be attached to existing ceiling wires, pipes, conduits, etc. Cable runs must not lie directly on the ceiling grid. Installation of cabling should be bundled in a main route, and drops branched off at building angles at each location as required. Cable runs must avoid any sources of electrical or mechanical interference.
- Wire twists for all pairs must be maintained up to the point of termination (within 13 mm or 0.5 in for Category 6 installations).
- There must be a minimum bend radius of four (4) times the cable diameter for 4-pair cable.
- Cable length from punch block to wall plate should not exceed 90 meters.
- Each cable should be permanently labeled at the work area faceplate and at the punch down block. Hand written labels are not acceptable. All labels should be machine printed black-on-white opaque tape. The font should be at least one-eighth inch (1/8") in height, block characters, and legible. If District-authorized surface mount modules are utilized, the label should be visible on the top of the module. The numbering scheme shall match the established scheme of 1V###, where '1' indicates the MPOE location and '2' indicates CR location; 'V' indicates voice (as opposed to data); and '###' indicates sequential numbers to correspond to the drop locations throughout the office space.
- The numbering pattern shall be ordered in a logically consecutive manner around the office space. It is the District's intention to align the voice drop numbering with the data drop numbering as much as possible. The District reserves the right to review the numbering pattern and make alternate suggestions where necessary.
- This network will use T568B wiring standards for all modular 8-pin (RJ-45) connections. The T568B standard is as follows:

PIN	COLOR		INDICATOR
1	White	Orange	W-O
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7	White	Brown	W-Br
8	Brown		Br

- The work performed under this specification shall be of good quality and performed in a workmanlike manner. In this context "good quality" means the work shall meet industry technical standards and quality of appearance. The District reserves the right to reject all or a portion of the work performed, either on technical or aesthetic grounds.
- The contractor should complete the installation of cabling in accordance with the EIA/TIA-568B Category 6 standards. Installation practices should be consistent with those entailed in the BICSI (Building Industry Consulting Services International) Telecommunications Distribution Methods Manual and will conform to all national, state and local municipal building codes.

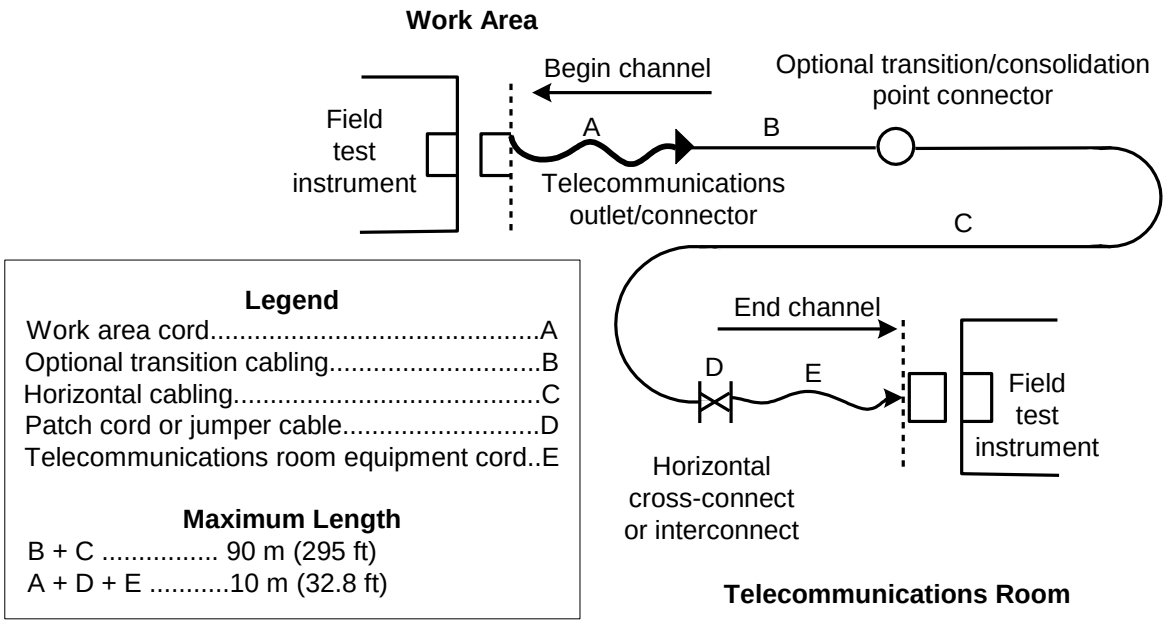
2.3 Testing and Certification

2.3.1 Testing Unit

The UL Level 4 testing unit should be capable of testing the installed cables at ANSI/TIA/EIA-568-C.1-2009, Commercial Building Telecommunications Cabling Standards, Category 6A (10GBase-T) specifications. Fluke DTX, and IDEAL LanTEK II are examples of this type of testing unit.

2.3.2 Tests

The objective of cable testing is to certify the installed cable to current Category 6A (10GBase-T) (for data cables) and Category 6 (for voice cables) standards. For this installation the definition of "channel" will include the horizontal cable from the patch panel to the work area terminating jack. The patch cables used for testing should be manufacturer supplied and meet Category 6A (10GBase-T) specifications. The following diagram illustrates the configuration for cable testing:



At a minimum the following tests should be conducted on each cable and included in the final certification report:

Wire Map

The wire map test checks the twisted-pair cabling to verify correct wiring. The status should be PASS/FAIL. All cables should achieve a PASS rating in the final certification report.

Propagation Delay

Propagation delay, or delay, is a measure of the time required for a signal to propagate from one end of the circuit to the other. Delay is measured in nanoseconds (nS). Typical delay for category 6 UTP is a bit less than 5 nS per meter (worst case allowed is 5.7 nS/m).

Delay Skew

Propagation (skew) is the difference between the propagation delay on the fastest and slowest pairs in a UTP cable. Some cable constructions employ different types of insulation materials on different pairs. This effect contributes to unique twist ratios per pair and to skew.

Near End Crosstalk (NEXT)

NEXT is a measure of the amount of signal which “leaks” from the station’s/hub’s transmitter to its own receiver. NEXT should be reported on a worst pair basis, and must be tested from both ends (wiring closet and work area) to ensure line integrity.

Attenuation or Insertion Loss

Attenuation measures the amount of signal loss in decibels (dB) on twisted-pair cable.

Attenuation to Crosstalk Ratio (ACR)

ACR reports the difference between NEXT and attenuation on the network. This measurement shows how much larger the received signal of a pair is compared to the noise on the same pair. The reported measurement should represent the cable's worst pair.

Cable Length

Length should show the overall distance (in feet) covered by the horizontal segment.

All measurements should be reported on Fluke DTX printouts (or equivalent) or on a "Certification Report", and should conform to the testing standards as specified in the (TIA/EIA, 2001), Commercial Building Telecommunications Cabling Standard, Part 1 General Requirements.

The contractor, any sub-contractors, and/or any hired staff by the contractor shall be bonded and shall pay for any damage to other District work or facilities (walls, carpet, tiles, other wiring, etc.) that occurs during the installation of the cabling system, and appears within a period of one year from the date of acceptance of work. The contractor shall provide a one-year warranty of the installed system against defects in material and workmanship. Within the warranty period, all labor and materials shall be provided at no expense to the District during normal working hours, and the contractor must provide a twenty-four (24) hour response time. The warranty period shall begin on the date of acceptance by the District.

District acceptance of the structured cabling system shall be based on the results of testing, functionality, and the receipt of documentation. With regard to testing, all cables must meet the specifications included in this RFP. The contractor shall be responsible for the testing of one hundred percent (100%) of the installed segments/cables at the District location (see Appendix C – Certification Reports). Any segment that does not meet the specifications included in this RFP shall be repaired/replaced, at no labor/materials cost to the District, by the contractor to the satisfaction of the District. With regard to documentation, the District requires the floorplan drawing to be an editable AutoCAD format that includes all cable drop locations and #'s. Final cable floorplan drawings, certification printouts, etc shall be submitted to the District within 30 days of completion of the project. All final documentation must be reviewed with the District site contact.

3.0 PROPOSAL DESCRIPTION

3.1 Proposal Format

Each proposal submitted **must** contain the following information in order of presentation in order to receive consideration:

1. Section 1: A separate title sheet containing the proposal title, your firm's name, address, telephone number, and fax number, the name of your firm's contact person and email address, and the proposal submittal date.

2. Section 2: A brief statement of your understanding of the work to be done in this project. Included in this section should be a detailed "project implementation schedule" corresponding with the District's stated critical dates, and preliminary working drawings of the proposed cable systems.

3. Section 3: A statement of the all-inclusive fee to be charged for this project, with specific materials, labor, estimated hours, and other expenses contained within the all-inclusive fee. A detailed bill of materials should be included. The bill of materials should contain manufacturer, manufacturer part numbers, product description, quantity, unit price, and price extension. Included in this section should also be manufacturer specification/certification sheets for all materials used (cable, outlets, etc).

4. Section 4: A separated listing of per segment pricing for addition or deletion of connections prior to installation, as well as per segment pricing for time and materials for additional connections requested after completion of this project (available for a period of twelve (12) months from District acceptance of installed system).

5. Section 5: A list of instrumentation to be used for testing of the structured cable system.

6. Section 6: Descriptions of relevant experience and training for your firm in the design, purchase, and installation of similar cabling systems. A copy of your firm's valid C-7 or C-10 California State Contractor's License (this license must have been issued prior to January 1, 2009). No other license classification is acceptable. A list of names, titles, organizations, addresses, and telephone numbers of references that can provide information about your firm's work on similar projects. These references should also include the dates of association, and a complete description of the responsibilities of your firm for each project. In addition, include a listing of all insurance coverage and amounts applicable to your firm. (NOTE: contractor must comply with all federal and state fire and safety regulations, conform to all ADA regulations and requirements, and be familiar with local, state, and federal rules and regulations pertaining to the performance of this work.

3.2 Project Schedule

The project described by this RFP involves upgrading/replacing building cabling that is currently being used. The schedule of implementation for this project is of critical concern to the District. In order to minimize safety risks/concerns and work disruption to District staff, the implementation of the project must be performed in phases with the bulk of the work performed outside of regular business hours. The time requirements for implementation of this project are:

- Expected project work hours are between the hours of 7pm – 3am
- In addition to night work, weekend work is acceptable
- All old cabling will be removed and disposed of in an environmentally safe manner

The District in good faith has laid out the dates and project milestones. The District has allotted a sufficient window of time (in its own estimate) for completion of this cabling project due to phase completion and off-hours work schedule. The selected vendor will work with the District's Project Lead in order to coordinate actual and detailed installation dates.

Following are some of the critical dates and/or milestones in the overall project as they relate to this RFP:

- **Monday, June 29, 2015 Date of this Request for Proposal**
- **Monday, July 13, 2015 Fresno Office Site Survey**
- **Monday, July 27, 2015 Proposal Due Date**
- **Monday, August 10, 2015 Contractor and District Sign Project Contract**
- **Monday, August 24, 2015 Tentative Target Start Date (to be confirmed)**
- **Friday, September 4, 2015 Contractor Completes the Cabling Install of the AQA/SI/PLD area.**
- **Friday, September 18, 2015 Contractor Completes the Cabling Install of the COM/PER area**
- **Friday, October 2, 2015 Contractor Completes the Cabling Install of the PER/ADS/ADM area.**
- **Friday, October 16, 2015 Contractor Completes the Cabling Install of the ITS/OC area.**
- **Friday, October 30, 2015 Cabling System Upgrade Complete**

Please refer to the spreadsheet in Appendix A1 for a descriptive project timeline.

3.3 Proposal Evaluation

The District will consider the following factors in selecting the contractor:

- Completeness and clarity of response to this Request for Proposal
- Training and experience of firm members in similar projects
- Responses from references
- Cost of services

The evaluation process will be directed primarily at those capabilities clearly shown in the written proposal submitted. However, the District may request any or all firms submitting proposals to make oral presentations during the evaluation process and/or provide additional information.

The District shall be the sole judge of all proposals, particularly which one best qualifies for acceptance. The District reserves the right to accept other than the lowest-priced proposal and to negotiate with proposers if it is in the best interest of the District to do so. The District reserves the right to reject any and all proposals.

3.4 Proposal Deadline

Your firm's proposal should be forwarded to:

Brandon Swedblom, Network Systems Analyst
San Joaquin Valley Unified Air Pollution Control District
1990 E. Gettysburg Avenue
Fresno, CA 93726
brandon.swedblom@valleyair.org

In order to be considered, proposals must be received no later than 5:00 p.m. on Monday, July 27, 2015.

4.0 APPENDICES

Appendix A. District Project Schedule

Appendix B. Proposed Project Milestones

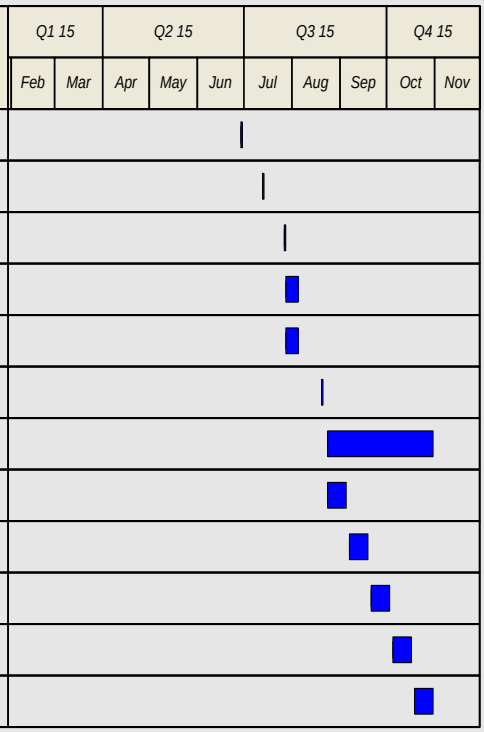
Appendix C. Fresno Office Floor Plan

Appendix D. Certification Report

- Data Certification Report (sample)

4.1 Appendix A. District Project Schedule

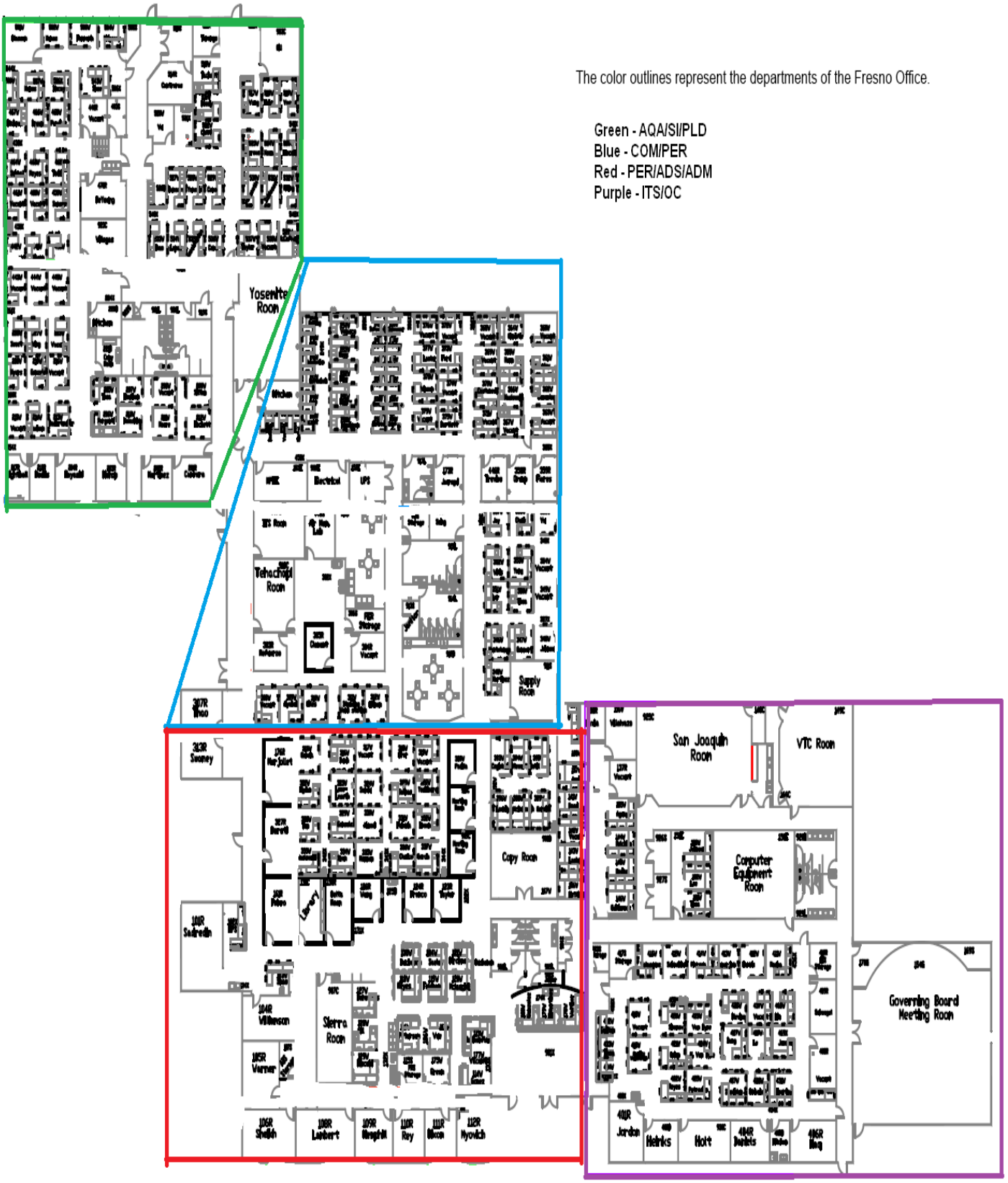
ID	Task Name	Start	Finish	Duration
1	RFP Released to Vendors	6/29/2015	6/29/2015	1d
2	RFP Bidders Conference	7/13/2015	7/13/2015	1d
3	Proposals Due from Vendors	7/27/2015	7/27/2015	1d
4	District Evaluates Proposals	7/28/2015	8/4/2015	6d
5	Negotiate Contract	7/28/2015	8/4/2015	6d
6	Governing Board Meeting for Potential Approval	8/20/2015	8/20/2015	1d
7	Integration Period	8/24/2015	10/30/2015	50d
8	Phase 1 – AQA/SI/PLD	8/24/2015	9/4/2015	10d
9	Phase 2 – COM/PER	9/7/2015	9/18/2015	10d
10	Phase 3 – PER/ADS/ADM	9/21/2015	10/2/2015	10d
11	Phase 4 – ITS/OC	10/5/2015	10/16/2015	10d
12	Phase 5 – Project Closure	10/19/2015	10/30/2015	10d



4.2 Appendix B. Proposed Project Milestones

San Joaquin Valley Air Pollution Control District Fresno Office Cabling System Upgrade Project Milestones	
Milestone	**Milestone Description**
1	Contractor and District **sign project contract**. Contractor meets with District staff to plan project implementation and strategy. District authorizes 1st payment; 10% of contract total, to contractor.
2	Contractor completes the cabling install of the **AQA/SI/PLD** area. All installed cable drops are labeled, certified, and documentation provided to the District for review and acceptance. Outstanding items are added to the project Punch List. High priority items are addressed. District authorizes 2nd payment; 15% of contract total, to contractor.
3	Contractor completes the cabling install of the **COM/PER** area. All installed cable drops are labeled, certified, and documentation provided to the District for review and acceptance. Outstanding items are added to the project Punch List. High priority items are addressed. District authorizes 3rd payment; 10% of contract total, to contractor.
4	Contractor completes the cabling install of the **PER/ADS/ADM** area. All installed cable drops are labeled, certified, and documentation provided to the District for review and acceptance. Outstanding items are added to the project Punch List. High priority items are addressed. District authorizes 4th payment; 15% of contract total, to contractor.
5	Contractor completes the cabling install of the **ITS/OC** area. All installed cable drops are labeled, certified, and documentation provided to the District for review and acceptance. Outstanding items are added to the project Punch List. High priority items are addressed. District authorizes 5th payment; 10% of contract total, to contractor.
6	Once all outstanding **Punch List** items are complete, Contractor and District sign the final acceptance document indicating mutual approval and project completion. District authorizes 6th and final payment; 40% of contract total, to contractor.

4.3 Appendix C. Fresno Office Floor Plan



The color outlines represent the departments of the Fresno Office.

Green - AQA/SI/PLD
Blue - COM/PER
Red - PER/ADS/ADM
Purple - ITS/OC

4.4 Appendix D. Certification Report

Data Certification Report (Sample)

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: PATCH CABLE
Date / Time: 08/02/2012 02:01:17 PM
Headroom 0.5 dB (NEXT 12-45)
Test Limit: TIA Cat 6A Channel
Cable Type: Cat 5 UTP
Calibration Date: 01/25/2012

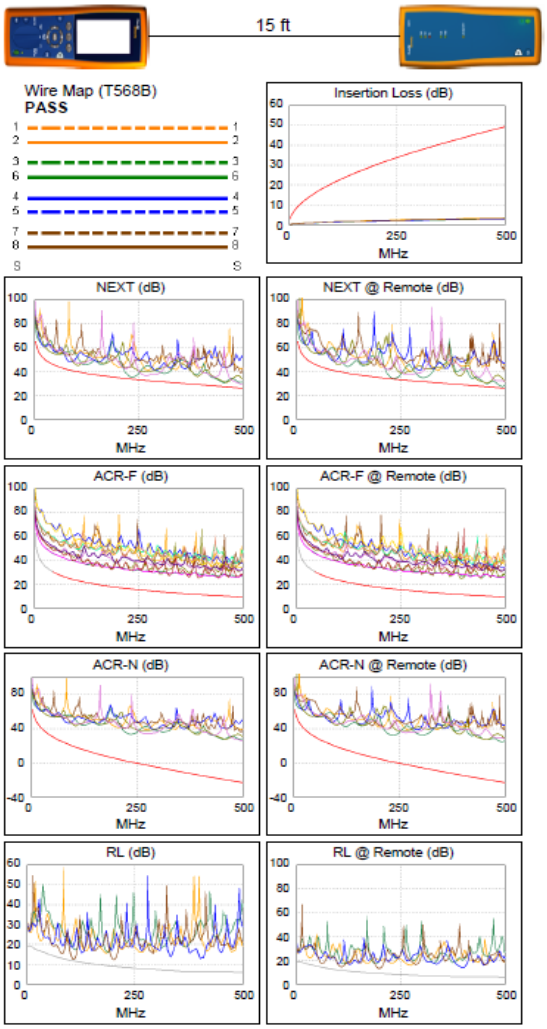
Operator: BRANDON
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS
Model: DTX-1800
Main S/N: 1938047
Remote S/N: 1938048
Main Adapter: DTX-CHA002
Remote Adapter: DTX-CHA002

Length (ft), Limit 328	[Pair 12]	15
Prop. Delay (ns), Limit 555	[Pair 12]	22
Delay Skew (ns), Limit 50	[Pair 12]	0
Resistance (ohms)	[Pair 12]	0.9
Insertion Loss Margin (dB)	[Pair 12]	44.2
Frequency (MHz)	[Pair 12]	469.0
Limit (dB)	[Pair 12]	47.6

	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-45	12-45	45-78	12-45
NEXT (dB)	1.6	0.5*	2.9	1.1
Freq. (MHz)	232.0	231.0	499.0	493.0
Limit (dB)	33.7	33.7	26.1	26.3
Worst Pair	45	45	45	45
PS NEXT (dB)	3.4	2.6	3.4	2.7
Freq. (MHz)	497.0	227.5	497.0	494.0
Limit (dB)	23.3	30.9	23.3	23.4
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	45-36	36-45
ACR-F (dB)	13.3	12.8	13.3	12.8
Freq. (MHz)	396.0	397.0	396.0	397.0
Limit (dB)	11.3	11.3	11.3	11.3
Worst Pair	45	45	36	45
PS ACR-F (dB)	15.4	14.1	15.8	14.1
Freq. (MHz)	302.0	396.0	396.0	396.0
Limit (dB)	10.7	8.3	8.3	8.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-45	12-45	45-78	12-45
ACR-N (dB)	13.6	13.0	49.1	47.3
Freq. (MHz)	3.4	3.1	499.0	493.0
Limit (dB)	60.4	61.1	-23.1	-22.7
Worst Pair	12	12	45	45
PS ACR-N (dB)	15.0	14.5	49.7	48.9
Freq. (MHz)	3.4	3.6	497.0	494.0
Limit (dB)	57.9	57.3	-25.8	-25.6
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	45	45	45
RL (dB)	6.3	7.5	6.3	7.5
Freq. (MHz)	404.0	400.0	404.0	400.0
Limit (dB)	6.0	6.0	6.0	6.0

Compliant Network Standards:
10BASE-T, 100BASE-TX, 100BASE-T4
1000BASE-T, 10GBASE-T, ATM-25
ATM-51, ATM-155, 100VG-AnyLan
TR-4, TR-16 Active, TR-16 Passive



* Measurement is within the accuracy limits of the instrument.

LinkWare Version 9.1

Project: DEFAULT
Untitled1

Site: SJVAPCD

FLUKE networks